This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for specifically detecting by biomolecular recognition a primary amino acid in a sample, said method comprising:

contacting said sample with an aminoacyl tRNA synthetase to form a first product; and

specifically detecting said first product whereby said primary amino acid is specifically detected by biomolecular recognition.

Claim 2 (currently amended): The method of claim 1, wherein said detecting detects ~~PPi~~ inorganic pyrophosphate.

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Claim 3 (currently amended): The method of claim 1, wherein said detecting detects an aminoacyl tRNA synthetase: ~~AA-AMP~~ aminoacyl-adenosine monophosphate complex of said primary amino acid.

Claim 4 (original): The method of claim 1, wherein the sample comprises a plurality of primary amino acids.

Claim 5 (original): The method of claim 1, wherein said aminoacyl tRNA synthetase is immobilized on a solid support.

Claim 6 (original): The method of claim 1, wherein said primary amino acid is phenylalanine.

Claim 7 (original): The method of claim 1, wherein said primary amino acid is glycine.

Claim 8 (original): The method of claim 1, wherein said primary amino acid is aspartic acid.

Claim 9 (original): The method of claim 1, wherein said sample is a biological sample.

Claim 10 (original): The method of claim 9, wherein said sample is a blood sample or a serum sample.

Claim 11 (original): The method of claim 1, wherein said sample is generated by N-terminal or C-terminal digestion of a polypeptide or protein.

Claim 12 (original): The method of claim 1, wherein said sample comprises amino acids released by hydrolysis of the peptide bonds of a protein.

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Claim 13 (currently amended): The method of claim 1, wherein ~~each of the 20 primary amino acids can be detected~~ said contacting is with an aminoacyl tRNA synthetase for each of the 20 primary amino acids.

Claim 14 (original): The method of claim 1, wherein said first product is labeled and said detecting is by means of said label.

Claim 15 (original): The method of claim 1, wherein said first product is directly detected.

Claim 16 (original): The method of claim 1, wherein said first product is indirectly detected.

Claim 17 (currently amended): The method of claim 4, wherein ~~said contacting further comprises contacting~~ said sample is contacted with a plurality of aminoacyl tRNA synthetases, wherein each synthetase of said plurality of synthetases is cognate to a different primary amino acid of said plurality of primary amino acids in said sample, ~~with a plurality of aminoacyl tRNA synthetases for the primary amino acids~~ to form a plurality of first reaction products, and wherein said detecting separately detects each of said plurality of said first reaction products, and whereby each of said plurality of said primary amino acids in said sample is specifically detected.

Claim 18 (currently amended): The method of claim 17, wherein the detecting is quantitative and the amount of each primary amino acid of said plurality of primary amino acids in said sample is thereby determined.

Claim 19 (original): The method of claim 17, wherein said plurality of amino acyl tRNA synthetases are spatially resolved.

Claim 20 (original): The method of claim 17, wherein said plurality of amino acyl tRNA synthetases are immobilized on a solid support.

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Claim 21 (currently amended): The method of claim 17, wherein each of said plurality of aminoacyl tRNA synthetases ~~are each~~ is located at a known locus of a spatial array, and wherein said detecting is according to said known locus.

Claim 22 (currently amended): The method of claim 21, wherein ~~said second product~~ each of said plurality of first reaction products is labeled and said detecting is by means of detecting said label.

Claim 23 (currently amended): The method of claim [[17]] 13, wherein an array is formed by separately locating each of said aminoacyl tRNA synthetases ~~each~~ at a known locus of a solid support selected from the group consisting of microtiter surface, microwell, microchannel and microcapillary array.

Claim 24 (currently amended): The method of claim 1 [[17]], wherein the detecting is quantitative and the amount of said primary amino acid in said sample is determined.

Claim 25 (currently amended): The method of claim 1, wherein said first product is [[said]] an aminoacyl tRNA synthetase: ~~AA-AMP~~ aminoacyl-adenosine monophosphate complex and said detecting is by indirect means comprising:

contacting said first product with a tRNA for said primary amino acid to form a second product; and

detecting said second product.

Claim 26 (original): The method of claim 25, wherein said second product is an aminoacyl tRNA.

Claim 27 (original): The method of claim [[25]]25, wherein said second product is AMP.

Claim 28 (original): The method of claim 25, further comprising:

contacting said first product with a plurality of tRNAs, wherein said plurality of tRNAs are spatially separated each at a known locus on an array and said detecting is by contacting said first product with said spatially separated tRNAs to form a second product; and

detecting said second product and identifying the detected amino acid according to said known location of said second product.

Claim 29 (original): The method of claim 25, wherein said tRNA is immobilized on a solid support and said second product is immobilized on said solid support.

Claim 30 (original): The method of claim 26, wherein said tRNA for said primary amino acid is fluorescently labeled and said label is used to detect said second product.

Claim 31 (original): The method of claim 26, further comprising contacting said aminoacyl tRNA with an elongation factor to form a ternary complex and detecting said ternary complex.

Claim 32 (original): The method of claim 31, wherein said factor is elongation factor Tu or elongation factor 1A in a complex with GTP or a GTP analog.

Claim 33 (original): The method of claim 32, wherein said GTP analog is a nonhydrolyzable analog of GTP which is incorporated into said ternary complex.

Claim 34 (original): The method of claim 25, wherein said tRNA is fluorescently labeled and said label is used to detect the second product.

Claim 35 (original): The method of claim 31, wherein said elongation factor is labeled.

Claim 36 (original): The method of claim 25, wherein an array of tRNAs for the primary amino acids is formed by separately locating each of said plurality of tRNAs at a known locus on a solid support.

Claim 37 (original): The method of claim 36, wherein said solid support is selected from the group consisting of microtiter surface, microwell, microchannel, glass chip, and microcapillary array.

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Claim 38 (original): The method of claim 1, wherein said detecting is by means of a fluorescence detector, a proximity scintillation surface, a spectrophotometer, a luminometer, a scintillation counter, a Raman spectrophotometer, a charge coupled device camera or a gamma counter.

Claim 39 (original): The method of claim 1, wherein a molecular sieve through which compounds of greater than about 6 kDa cannot pass separates said sample from said aminoacyl tRNA synthetase.

Claim 40 (currently amended): The method of claim 25, wherein the detecting <u>is quantitative and the amount of said primary amino acid in said sample is determined</u>.

Claim 41 (original): The method of claim 31, further comprising contacting said ternary complex with a biorecognition element; and detecting the interaction of said ternary complex with said biorecognition element.

Claim 42 (original): The method of claim 31, wherein each of said tRNA for a primary amino acid comprises a unique distinguishing label for detection.

Claim 43 (original): The method of claim 31, wherein detecting of said ternary complex is by means of a biosensor selected from the group consisting of a piezoelectric crystal,

a surface plasmon resonance system, an acoustic wave sensor device, a fluorescence detector or a proximity scintillation surface.

Claim 44 (original): The method of claim 31, wherein said biorecognition element is bound to a transducer to create an amino acid biosensor.

Claim 45 (original): The method of claim 31, wherein said elongation factor is immobilized on said amino acid biosensor.

Claim 46 (original): The method of claim 31, wherein the biorecognition element is a ternary complex probe immobilized on a transducer.

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Claim 47 (original): The method of claim 46, wherein the transducer is an optical fiber, an electrode, a piezoelectric crystal, a thermistor or a planar wave guide.

Claim 48 (original): The method of claim 31,wherein said tRNA for said primary amino acid is labeled with a detectable tag.

Claim 49 (original): The method of claim 48, wherein said detectable tag is a fluorophore, a chromophore, a nanoparticle, a metal, an enzyme, a liposome-based label, an electrogenic label, ferrocine, biotin or a radioisotope.

Claim 50 (original): The method of claim 31, wherein said elongation factor is labeled with a detectable tag.

Claim 51 (currently amended): The method of claim 3, wherein said complex is contacted with an elongation factor to form a ternary complex and said ternary complex is detected using a ternary complex probe.

Claim 52 (original): The method of claim 51, wherein said ternary complex probe is an antibody or an antibody fragment specific for said ternary complex.

Claim 53 (currently amended): The method of claim [43] 51, wherein said ternary complex probe is a nucleic acid.

Claim 54 (original): The method of claim 25, wherein said tRNA for said primary amino acid is labeled with a fluorophore, a chromophore, a nanoparticle, a metal, an enzyme, a liposome-based label, an electrogenic label, ferrocine, biotin or a radioisotope.

Claim 55 (original): The method of claim 54, wherein said tRNA is detected by fluorescence, chromophore, radioactive decay, an electrical signal, or chemiluminescence.

Claim 56 (original): A spatial array for the detection of a primary amino acid in a sample, wherein said array comprises:

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spatially separated aminoacyl tRNA synthetases or spatially separated tRNAs for a plurality of the primary amino acids each at a known locus on said array;

means for contacting said sample with said spatially separated synthetases or spatially separated tRNAs to form a first product.

Claim 57 (currently amended): The spatial array of claim 56, wherein said first product is selected from the group consisting of an aminoacyl tRNA synthetase: aminoacyl-adenosine monophosphate ~~AA-AMP~~ of said primary amino acid, ~~PP~~$_i$ inorganic pyrophosphate, the aminoacyl tRNA of said primary amino acid, [[or]] and AMP.

Claim 58 (original): The spatial array of claim 56, wherein said spatially separated aminoacyl tRNA synthetases or spatially separated tRNAs collectively provide an aminoacyl tRNA synthetase or tRNA for each of the primary amino acids.

Claim 59 (original): The spatial array of claim 58, wherein said spatially separated aminoacyl tRNA synthetases or said spatially separated tRNAs are immobilized at a known locus on said array.

Claim 60 (original): The spatial array of claim 58, wherein the spatially separated aminoacyl tRNA synthetase or said spatially separated tRNA for said primary amino acid is labeled.

Claims 61-92 (canceled).

Claim 93 (original): The method of claim 32 wherein biorecognition elements are arrayed on a film or scintillator sheet.

Claim 94 (original): The method of claim 32, wherein the formation of the ternary complex employs dual distinguishable fluorescent labels, wherein said elongation factor is labeled with one detectable label and said tRNA for said primary amino acid is labeled with a second detectable label.

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Claim 95 (currently amended): The method of claim 94, wherein said first label is ~~Texas Red~~ sulforhodamine 101 sulfonyl chloride and said second label is fluorescein, and after formation of said ternary complex, the ratio of bound fluorescein and ~~Texas Red~~ sulforhodamine 101 sulfonyl chloride labels is determined using a dual-channel laser scanning confocal microscope as a detection system.

Claim 96 (original): The method of claim 26, further comprising contacting said aminoacyl tRNA with an aptamer to form a ternary complex and detecting said ternary complex.

Claims 97-102 (canceled).

Claim 103 (new): The array of claim 56, wherein said array is formatted as a microparticle, microbead, microsphere, microspot, microwell, or microfluidic array.